□□□□□□□□□□□□

□□□ □□□

□□□□

□□□superhuman□□□

□□□

□□□

□□□Universal Approximation Theorem □ Nash Embedding Theorems □□□□□□□□□□□□□□□□□word-embedding vector space □□

□□□ Axiom of Choice □□□

□□

□□□□□□□□□□□□□□□□

□□□

□□□□□□□□□□□□ Turing Test□AlphaGo □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ dataset□□□

□□□

□□□□□□□□□□□□□□□□□□□□□□□□□ AlphaGo Zero □ superhuman □□□□□□ AlphaGo □□□□□□ AlphaZero□MuZero □□

□□□□□□□□□□□□□□□□□□□□□□□□ SAE level 4 □□

□□□□□□□□□□□□□□□□□ ready□□□□□□□□□□□□□□□□□ Alphabet/Waymo □□□□□□□□□□□□ SAE level 4□□ SAE level 4 □□□□□□□□□□□□□□□

□□□□□□ Alphabet/Waymo □□

□□
□□□□□□□□□□□□□

Reward Is Enough □□□□□□□□□□reward □□□□□□□□□□□□□□□□ reward □□□□□ reward □□□□□□□□□□□□□□□□□□
□□□□□□□□□□□□□□□□□□□□Reward □□□

□□
□□ SAE level 4 □□□□□□□
□□□

□□□□□□Nash Embedding Theorems □□ Word-
embedding Vector Space □□□

□□
□□□□□

□□
□□
□□□

□□
□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□deep learning□□□□□□□□□□reinforcement learning□□□□□□□□□□□
□□□

□□
□□□□□□□□□□ reward□□□

□□
□□□□□□□□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□
□□□□□□□□□□□□□□□□□

□□□□□□□□□□□□□□□□□□□Reward □□
□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□Universal Approximation Theorem □□□□□□□□□□□□□□□□□□□□□□□□□□□□□
□□
□□□□□□□□□□□□selfish gene □□□

□□
□□□□□□□□□□□□

□□

□□□

□□□

□□□logical positivism □ logical empiricism□□□□□□□Positivism □ empiricism□□□□□□□□□□□□□

□□□□□□□□□□□□□□□□□□□□Category Theory□□critique□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□□□□□ critique□□□critique □□□□□□□□□□□□□□□□□□□□□□□□□□Word-embedding Vector Space □□□□□□□□□□□□□□□□□□□□□□□□□□□□
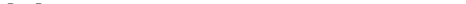
□□

□□

□□

□□□ Peano axioms □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□□

□□□

□□□

□□□□□□□□□□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

1□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ AlphaGo □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□□

Deepmind □□ AlphaGo Zero □□□ AlphaGo □□□

2□□

3□□□

4□□□ Axiom of Choice □□□

□□□ 1) □ 2) □□□□□□□□□□ 3) □ 4) □□□□□□□□□□□□ 1) □ 2) □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□□

Leukotomy □□□□□□□□□□□□□□□□□□□□□□□□□□□□□ selfish gene □□□□□□□□□□□□□□□□□□ Technological Singularity□AlphaGo Zero □ superhuman performance□potentially a meta-solution to any problem□Reward Is Enough□□ liberal arts □□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□

□□□

Solyndra □□□□□□□□□□□□□□□□□□□□□□□□□□ arXiv □□□ arXiv □□□

□□□□□□□□□□□□□□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ A□B□C□D □□□□□□□□□□□

A. □□□□□□□□□□□□□□□

1. □□

2. □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

3. □□□ Chaitin's constant □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

4. □□□□□□□□□□□□□□□□□□□□□□□□□

5. □□□□□□ 1 - 4 □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

B. □□□□□□□□□□□□□□□□□□

6. □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□relevance theory □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

7. □□□

8. Grigori Perelman □ Poincaré conjecture □□□

9. Demis Hassabis □ AlphaGo □□□□□□□□□ intuition□□□□□□□□□□□□□ intuition □□□□ Demis Hassabis □□□□ AlphaGo □□□□□ intuition □□□□□□□□□ AlphaGo □□□□□□□□□□□□□ a meta-solution to any problem□

10. □□ AlphaGo □□□□□□□□ Nature □□□□□□□□□ superhuman performance□□□

C. □□□□□□□□□□□□□□□□□□□□

11. □□ form □□□

12. □□□□□□□□□□□□□ motif □□□

13. □□□□□□□□□□□□□"truth"□□□□□□ truth□□

14. □□□□□□□□□ The Selfish Gene□□ The Immortal Gene□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

15. □□□□□□□□□□□□□□□□□□□□□□□□□□□Freeman Dyson □□□ Birds and Frogs □□ birds □ frogs □□□

16. □□□□□□□□□□□□□Austrian School of Economics□□□

17. □□ selfish gene □□

D. □□□□□□□□□□□□□□□□□□□□:

18. □□□

19. □□

20. □□□□□□"□□□□"□□□□□□□□□□□□□"□□□□□□□□□□□□□"□□

21. □□ Turing Machine □□□deterministic, probabilistic, etc.□□□□□□□□□□□□□□

22. □□ Turing Test □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ SAE level 4 □ level 5 □□□

23. □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ word-embedding vector space □ encoder-decoder, attention, transformer, BERT □□

24. □□□□□□□□□ deep-learning □□□□□□ deep residual networks □□□□□□generative adversarial networks, etc.□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

25. □□□□□□□□□□□□□□ Universal Approximation Theorem □□ overfitting□underfitting □□□□□□□□□□□□□□□□□□□□□ chaos phenomena □□□□□□□□□□□□□

26. □□□ reward □□ Reward Is Enough □□□□□□

27. □□selfish gene □□□

28. □□

E. □□□□:

29. □□ O.J.Simpson □□□

30. □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ reward □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□□□□□□□□□□□□□

□□□

□□□□□□□□□□□□□□□□ Freeman Dyson □□□

□□□

□□□

□□

□□□□□□"□□□□□□□□"□□

□□

□□□□□□□□□□□ AlphaGo □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ Nature □□ SAE level 5 □□□□□□□□□SAE level 4 □□□□□□□□□

□□□

□□□

□□

□□□The Selfish Gene □□□□□□□□□□□□□

□□□ Freeman Dyson □□□□□□□□□ a great bird□□□□□□□□□ frog□□□□□□□ bird □ frog □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ frog □□□□□□□□□□□□□□□□□ frog □□□□□□□□□□□□□□□□□□□□ bird□

□□□

□□□

□□

□□

□□□

□□□

□□□

□□□
□□□□□□□□□□"□□□□□□□□□□□□□□□□□"□□□□□□□□□□□□□□□"□"□□□□ natural law □□□□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□
□□□□□□□□□□□□□□□□□□□

□□□

Deepmind 的 Reward Is Enough□□
□□ Reward Is Enough □□□□□□□□□□□□□□

□□
□□
□□
□□□

□□□

□□□
□□□□□□□□□□□□□□□□□□

□□□□

□□

□□□
□□□□□

□□□
□□□

□□